

ENGINEERING EXHIBIT

Application for Construction Permit New Replacement Digital Television Translator

prepared for

Bluestone License Holdings Inc.

WCYB-TV Bristol, VA

Replacement Digital Translator

Ch. 29 9.6 kW

Bluestone License Holdings Inc. (“*Bluestone*”) is the licensee of television station WCYB-TV, Facility ID 2455, Bristol, VA. WCYB-TV is operating on its post-transition digital Channel 5, its pre-transition analog channel. Pursuant to the procedures adopted in MB Docket 08-253,¹ *Bluestone* herein proposes to construct a new replacement digital television translator station on Channel 29 to aid in serving its principal community of Bristol, VA and other nearby communities.

Since ceasing analog operations on the transition date, WCYB-TV has received numerous calls regarding reception problems, including issues with indoor reception at locations within Bristol and other areas nearby to the transmitter site. Calls have been received from locations in Bristol and the nearby communities of Johnson City and Kingsport, all of which will be within the proposed translator’s service contour. Problems with digital Low-Band VHF reception by other stations have been widely publicized since the transition date. The proposed translator, to be sited on the same antenna structure as the WCYB-TV VHF digital Channel 5 facility, would provide some level of digital UHF fill-in service to aid indoor reception. The translator will employ the antenna and associated transmitting system utilized by WCYB-TV’s pre-transition digital Channel 28 (BLCDT-20020812ACC), with adjustments made to operate on Channel 29 and an effective radiated power set at 9.6 kW.

¹Report and Order, *Amendment of Parts 73 and 74 of the Commission’s Rules to Establish Rules for Replacement Digital Low Power Television Translator Stations*, MB Docket 08-253, FCC 09-36, released May 8, 2009.

Figure 1 depicts the 51 dB μ coverage contour of the proposed translator, along with the WCYB-TV digital Channel 5 noise limited contour (BLC DT-20090622AEE pending) and the pre-transition analog Channel 5 Grade B contour (BLCT-20020708AAW). The translator's service contour will not extend beyond WCYB-TV's former analog Grade B contour.

The proposed translator will employ the existing non-directional antenna system top-mounted on the WCYB-TV antenna supporting structure, having FCC Antenna Structure Registration ("ASR") number 1225306. No change to the overall structure height and no tower work are required to carry out this proposal.

Detailed interference studies per OET Bulletin 69² show that the proposal complies with the Commission's interference protection requirements toward all post-transition digital television, television translator, LPTV, and Class A stations. The results, summarized in **Table 1**, show that any new interference does not exceed the Commission's interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations).

Accordingly, the instant proposal complies with §§73.6012 – 73.6020 regarding interference protection to digital television, low power television, television translator, Class A television, and land mobile facilities.

The nearest FCC monitoring station is 373 km distant at Powder Springs, GA. This exceeds the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with "quiet" zones specified in §73.1030(a) and (b). There are no AM stations within 3.2 kilometers of the site, based on information contained within the Commission's database. The site location is beyond the border areas requiring international coordination.

²FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). The implementation of OET-69 for this study followed the guidelines of OET-69 as specified therein. A cell size of 1 km was employed. Comparisons of various results of this computer program (run on a Sun Sparc processor) to the Commission's implementation of OET-69 show excellent correlation.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The proposal will involve use of an existing transmitting antenna. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules. No tower construction or change in structure height is proposed. Therefore, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number. 65. Based on OET-65 equation (10) and assuming 25 percent relative field at downward elevations, the calculated signal density near the antenna structure at two meters above ground level attributable to the proposed facility is $1.4 \mu\text{W}/\text{cm}^2$, which is 0.4 percent of the general population/uncontrolled maximum permitted exposure limit. This is well below the five percent threshold limit described in §1.1307(b)(3) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. The applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, mast or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

Certification

The undersigned hereby certifies that the foregoing statement and associated attachments were prepared by him or under his direction, and that they are true and correct to the best of his knowledge and belief.



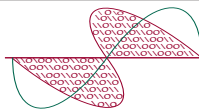
Joseph M. Davis, P.E.
October 29, 2009

Chesapeake RF Consultants, LLC
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703-650-9600

List of Attachments

| | |
|----------|---|
| Figure 1 | Coverage Contour Comparison |
| Table 1 | Interference Analysis Results Summary |
| Form 346 | Saved Version of Engineering Sections from FCC Form at Time of Upload |

This material was entered October 29, 2009 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's account number and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.



Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 1
Coverage Contour Comparison
WCYB-TV Bristol, VA
Replacement Digital Translator
Ch. 29 9.6 kW

prepared for
Bluestone License Holdings Inc.

October, 2009

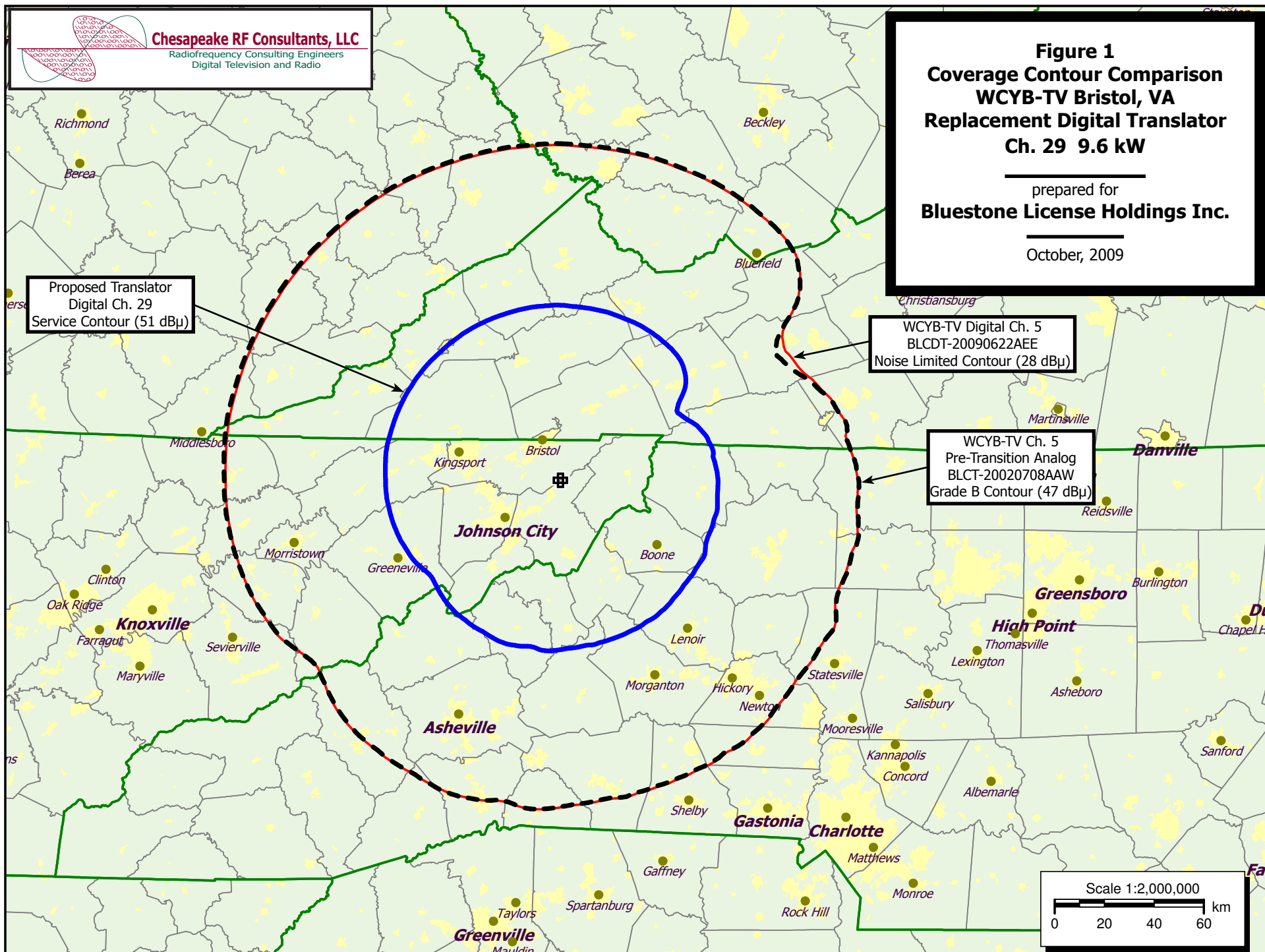


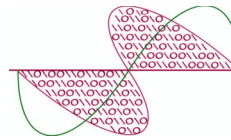
Table 1

Interference Analysis Results Summary

prepared for

Bluestone License Holdings Inc.

WCYB-TV Bristol, VA

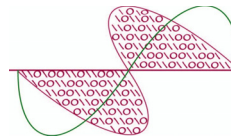
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Digital Television and Radio

NEW-LD USERRECORD-01 BRISTOL JD VA US
 Channel 29 ERP 9.6 kW HAAT 759. m RCAMSL 01404 m STRINGENT MASK
 Latitude 036-26-58 Longitude 0082-06-29
 Nondirectional

| Ch. | Call | City/State | Dist | Status | Application Ref. No. | ---Population (2000 Census)---- | |
|-----|---------|-------------------|-------|--------|----------------------|---------------------------------|------------------|
| | | | (km) | | | Baseline | New Interference |
| 14 | W14AS | WEST ASHEVILLE NC | 104.0 | LIC | BLTT-19890109IG | --- | none |
| 14 | WAPG-CA | GREENEVILLE TN | 72.2 | LIC | BLTTA-20030709AAE | --- | none |
| 14 | W14AQ | HARROGATE TN | 139.9 | LIC | BLTTL-19900206JD | --- | none |
| 21 | W21CI | STATESVILLE NC | 130.6 | LIC | BLTT-20070308ABW | --- | none |
| 21 | WJDW-LP | TAZEWELL VA | 97.1 | LIC | BLTTL-20041116AEW | --- | none |
| 25 | WJJV-LP | ASHEVILLE NC | 108.2 | LIC | BLTTL-19990120JB | --- | none |
| 25 | W25AY | JEFFERSON NC | 55.4 | LIC | BLTT-19910123ID | --- | none |
| 25 | WKPT-LP | KINGSPORT TN | 43.7 | APP | BSTA-20060331AXC | --- | none |
| 25 | WKPT-LP | KINGSPORT TN | 43.7 | LIC | BLTT-19871119IB | --- | none |
| 26 | W26BK | TALBERT KY | 121.2 | LIC | BLTTL-20001130ACD | --- | none |
| 27 | W27AB | CANTON, ETC. NC | 121.5 | LIC | BLTT-1989 | --- | none |
| 27 | W27AX | LAKE LURE NC | 114.0 | LIC | BLTT-19931006ID | --- | none |
| 28 | W28DD-D | LOUISA KY | 189.8 | LIC | BLDTT-20080919ABS | --- | none |
| 28 | WGTB-LP | CHARLOTTE NC | 184.7 | LIC | BLTTL-20000615AGB | --- | none |
| 28 | W28AN | FRANKLIN NC | 194.3 | LIC | BLTT-19900925IE | --- | none |
| 28 | W65DS | HONEA PATH SC | 169.9 | CP | BDISDTL-20060331BPN | --- | none |
| 28 | WJDP-LP | GATLINBURG TN | 156.9 | LIC | BLTTL-20070122AAC | --- | none |
| 28 | WEZK-LP | KNOXVILLE TN | 170.7 | LIC | BLTTL-20001011ACO | --- | none |
| 28 | WCYB-TV | BRISTOL VA | 0.0 | APP | BDRTCDT-20090824ABQ | --- | none |
| 28 | W28DC-D | ROANOKE, ETC. VA | 192.3 | CP | BDCCDTL-20061019ACM | --- | none |
| 29 | NEW | ATHENS GA | 301.8 | APP | BNPDTL-20090825AJG | --- | none |
| 29 | WANN-LD | ATLANTA GA | 356.9 | LIC | BLDTL-20090915ADO | --- | none |
| 29 | WANN-CA | ATLANTA GA | 356.9 | APP | BDISDTL-20090302AEH | --- | none |
| 29 | WANN-CA | ATLANTA GA | 356.9 | APP | BSTA-20090309ACN | --- | none |
| 29 | NEW | BOWLING GREEN KY | 382.9 | APP | BNPDTL-20090825BHZ | --- | none |
| 29 | NEW | GLASGOW KY | 352.3 | APP | BNPDTL-20090825AQM | --- | none |
| 29 | WXIX-TV | NEWPORT KY | 366.3 | LIC | BLCDDT-20000908ABI | --- | none |
| 29 | W08AO | CANTON LAKE NC | 121.5 | APP | BDISDTT-20090928ACC | 316,548 | 1,215 (0.38%) |
| 29 | W29DE-D | HAYESVILLE NC | 225.7 | LIC | BLDTT-20090210AAS | --- | none |
| 29 | W08BF | SPRUCE PINE NC | 63.3 | APP | BDISDTT-20091001AKH | 169,007 | 2,087 (1.23%) |
| 29 | WXLV-TV | WINSTON-SALEM NC | 214.9 | CP | BPCDDT-19991101ACF | 3,396,558 | 310 (0.01%) |

Table 1**Interference Analysis Results Summary**

(page 2 of 2)

**Chesapeake RF Consultants, LLC**Radiofrequency Consulting Engineers
Digital Television and Radio

| <u>Ch.</u> | <u>Call</u> | <u>City/State</u> | <u>Dist</u> | <u>Status</u> | <u>Application Ref. No.</u> | <u>---Population (2000 Census)---</u> | |
|------------|-------------|------------------------|-------------|---------------|-----------------------------|---------------------------------------|-------------------------|
| | | | <u>(km)</u> | | | <u>Baseline</u> | <u>New Interference</u> |
| 29 | WTCI | CHATTANOOGA TN | 317.5 | LIC | BLEDT-20060629ACO | 976,501 | 0 (0.00%) |
| 29 | W29DI-D | BRIDGEWATER, ET. AL VA | 312.1 | CP | BDCCDTT-20061030AOP | --- | none |
| 29 | NEW | CROZET VA | 348.7 | APP | BNPDTL-20090825ASS | --- | none |
| 29 | W54BG | MOOREFIELD WV | 397.9 | APP | BDISTT-20070123ABN | --- | none |
| 29 | NEW | WELCH WV | 118.3 | APP | BNPDTT-20090825BFJ | 148,789 | 605 (0.41%) |
| 30 | W35AV | BLACK MOUNTAIN NC | 101.1 | APP | BDISDTT-20090824ACP | 177,159 | 0 (0.00%) |
| 30 | W35AV | BLACK MOUNTAIN NC | 101.1 | CP | BDISDTT-20060330AEX | 177,159 | 0 (0.00%) |
| 30 | WSOC-TV | SHELBY NC | 149.3 | APP | BDRTCDT-20090630AES | --- | none |
| 30 | W30CS-D | ZIONVILLE NC | 38.2 | LIC | BLDTT-20090615AAL | 63,320 | 230 (0.36%) |
| 30 | WVLT-TV | KNOXVILLE TN | 173.2 | LIC | BLCDDT-20040420AAF | 1,348,309 | 5,553 (0.41%) |
| 30 | WVLT-TV | KNOXVILLE TN | 173.2 | CP | BPCDT-20080618AAM | 1,440,885 | 7,195 (0.499%) |
| 30 | WSLS-TV | ROANOKE VA | 193.3 | CP | BPCDT-20080619ABS | 1,167,727 | 178 (0.02%) |
| 31 | W31BU | TALBERT KY | 121.2 | LIC | BLTTL-20001130ACE | --- | none |
| 31 | W31AZ | HENDERSONVILLE NC | 137.3 | LIC | BLTTL-19940525JJ | --- | none |
| 31 | WAPW-CA | ABINGDON VA | 41.4 | LIC | BLTTA-20030618AAZ | --- | none |
| 36 | WAPK-CA | KINGSPORT TN | 3.3 | LIC | BLTTA-20030618AAX | --- | none |

| SECTION III - ENGINEERING DATA (Digital) | | | | | | | | | | |
|---|--|-----------|---------|-------|---------|-------|---------|-------|---------|-------|
| TECHNICAL SPECIFICATIONS | | | | | | | | | | |
| Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable. | | | | | | | | | | |
| TECH BOX | | | | | | | | | | |
| 1. | Channel Number: 29 | | | | | | | | | |
| 2. | Translator Input Channel No. : 5 | | | | | | | | | |
| 3. | Primary station proposed to be rebroadcast: | | | | | | | | | |
| | Facility Identifier | Call Sign | City | State | Channel | | | | | |
| | 2455 | WCYB-TV | BRISTOL | VA | 5 | | | | | |
| 4. | Antenna Location Coordinates: (NAD 27) Latitude: Degrees 36 Minutes 26 Seconds 58 <input checked="" type="radio"/> North <input type="radio"/> South Longitude: Degrees 82 Minutes 06 Seconds 29 <input checked="" type="radio"/> West <input type="radio"/> East | | | | | | | | | |
| 5. | Antenna Structure Registration Number: 1225306 <input type="checkbox"/> Not Applicable [Exhibit 10] <input type="checkbox"/> Notification filed with FAA | | | | | | | | | |
| 6. | Antenna Location Site Elevation Above Mean Sea Level: 1284 meters | | | | | | | | | |
| 7. | Overall Tower Height Above Ground Level: 128 meters | | | | | | | | | |
| 8. | Height of Radiation Center Above Ground Level: 120 meters | | | | | | | | | |
| 9. | Maximum Effective Radiated Power (ERP): 9.6 kW | | | | | | | | | |
| 10. | Transmitter Output Power: 0.53 kW | | | | | | | | | |
| 11. | a. Transmitting Antenna: Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under CDBS Public Access (http://fjallfoss.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm). Make sure that the Standard Pattern is marked Yes and that the relative field values shown match your values. Enter the Manufacturer (Make) and Model exactly as displayed in the Antenna Search. <input checked="" type="radio"/> Nondirectional <input type="radio"/> Directional "Off-the-shelf" <input type="radio"/> Directional composite Manufacturer DIE Model TFU-24GTH-RO4 b. Electrical Beam Tilt: 1.5 degrees <input type="checkbox"/> Not Applicable | | | | | | | | | |
| c. Directional Antenna Relative Field Values: <input checked="" type="checkbox"/> N/A (Nondirectional or Directional "Off-the-shelf") Rotation (Degrees): <input type="checkbox"/> No Rotation | | | | | | | | | | |
| | Degrees | Value | Degrees | Value | Degrees | Value | Degrees | Value | Degrees | Value |
| | 0 | | 10 | | 20 | | 30 | | 40 | |
| | 60 | | 70 | | 80 | | 90 | | 100 | |
| | 120 | | 130 | | 140 | | 150 | | 160 | |
| | 180 | | 190 | | 200 | | 210 | | 220 | |
| | 240 | | 250 | | 260 | | 270 | | 280 | |
| | 300 | | 310 | | 320 | | 330 | | 340 | |
| | Additional Azimuths | | | | | | | | | |

[Relative Field Polar Plot](#)

| NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided. | |
|---|--|
| 12. | Out-of-channel Emission Mask: <input type="radio"/> Simple <input checked="" type="radio"/> Stringent |
| CERTIFICATION | |
| 13. | Interference : The proposed facility complies with all of the following applicable rule sections. 47.C.F.R Sections 74.709, 74.793(e), 74.793(f), 74.793(g), 74.793(h), 74.794(b) and 73.1030. <input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 11] |
| 14. | Environmental Protection Act. The proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., The facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine RF compliance, an Exhibit is required. <input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 12] By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency |

| | |
|--|---|
| | electromagnetic exposure in excess of FCC guidelines. |
| 15. | Channels 52-59. If the proposed channel is within channels 52-59, the applicant certifies compliance with the following requirements, as applicable: <input type="checkbox"/> The applicant is applying for a digital companion channel for which no suitable channel from channel 2-51 is available. <input type="checkbox"/> Pursuant to Section 74.786(d), the applicant has notified, within 30 days of filing this application, all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees. |
| 16. | Channels 60-69. If the proposed channel is within channels 60-69, the applicant certifies compliance with the following requirements, as applicable: <input type="checkbox"/> Pursuant to Section 74.786(e), the applicant has notified, within 30 days of filing this application, all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees. <input type="checkbox"/> Pursuant to Section 74.786(e), the applicant proposing operation on channel 63, 64, 68 and 69 ("public safety channels") has secured a coordinated spectrum use agreements(s) with 700 MHz public safety regional planning committee(s) and state administrator(s) of the region(s) and state(s) within which the antenna site of the digital LPTV or TV translator station is proposed to locate, and those adjoining regions and states with boundaries within 75 miles of the proposed station location. <input type="checkbox"/> Pursuant to Section 74.786(e), the applicant for a channel adjacent to channel 63, 64, 68 or 69 has notified, within 30 days of filing this application, the 700 MHz public safety regional planning committee(s) and state administrator(s) of the region and state containing the proposed digital LPTV or TV translator antenna site and regions and states whose geographic boundaries lie within 50 miles of the proposed LPTV or TV translator antenna site. |
| PREPARERS CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED. | |

SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

| | | | |
|---|--|--|---------------------|
| Name JOSEPH M. DAVIS, P.E. | | Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER | |
| Signature | | Date 10/29/2009 | |
| Mailing Address CHESAPEAKE RF CONSULTANTS, LLC 11993 KAHNS ROAD | | | |
| City MANASSAS | | State or Country (if foreign address) VA | Zip Code 20112 - |
| Telephone Number (include area code) 7036509600 | | E-Mail Address (if available) JOSEPH.DAVIS@RF-CONSULTANTS.COM | |